NSF-FIRE Workshop on Federating Computing Resources

May 11-12, 2010
Princeton University
Princeton, NJ

There is increasing demand among researchers and production system architects to combine compute, storage, and network resources from multiple sources (e.g., the organization’s own resources, their partners’ resources, commercial and academic clouds, programmable network substrates).

Various proprietary and experimental systems have taken the first steps to demonstrate the potential effectiveness of such combinations, but substantial concerns remain about security, interoperability and management. In many ways, the situation resembles what emerging networks faced at the dawn of the Internet. Consolidation seems certain, but we lack the right architectural framework, where new models must contend with a quickly growing base of incompatible production systems.

Against this backdrop, this workshop will focus on issues related to federating resources from multiple autonomous organizations into a seamless/ubiquitous resource pool, thereby giving users standard interfaces for accessing the widely distributed and diverse collection of resources they need.

Workshop Goal: To develop a common understanding of what it means for autonomous organizations to federate their compute, storage and network resources, including defining relevant terminology, establishing universal design principles, and identifying candidate federation strategies. The workshop is expected to result in a report that helps frame and guide efforts to federate computing substrates across organizational boundaries, along with recommendations to research agencies (and the CS community) as to how a federation agenda can best be advanced.

Workshop Topics: To include, but not be limited to identity management, authentication and authorization, resource specification, resource description, policy specification and enforcement, economics and incentives, virtualization technologies, operations and management, user-level abstractions and services, and governance considerations. To keep the discussions as grounded as possible, there will be a focus on real-world usage scenarios, available tools and mechanisms, and existing infrastructure deployments.

Workshop Attendance: To be limited to approximately 40 invited participants, selected based on a single-author/3-page position paper. Papers (pdf) should be sent to federation@cs.princeton.edu by March 1st; invitees will be notified by March 15th. Each position paper should include at most a half-page bio, organization/affiliation, e-mail address, and phone number for the author (bios are included in the 3-page limit).

Workshop Organizers: Larry Peterson (Princeton University) and Serge Fdida (University Pierre et Marie Curie). NSF and EU-FIRE funding pending.